

### Remarks

This is in response to the final Office Action mailed on April 7, 2005. Claims 11 and 33 are canceled without prejudice or disclaimer. Claims 1 and 23 are amended to incorporate subject matter from claims 10 and 32, respectively, as well as clarify the claimed subject matter. In addition, claims 12, 28, 34, and 35 are editorially amended; none of the amendments limits the scope of these claims. Claims 1-9, 12-31, and 34-45 remain pending. Reconsideration and allowance are respectfully requested for at least the following reasons.

#### I. Claim Rejections - 35 U.S.C. 102

In section 9 of the Action, claims 1-4, 6-11, 13-16, 20-26, 28-33, 35-38, and 43-45 were rejected under 35 U.S.C. § 102(e) as being anticipated by Koltai et al., U.S. Patent No. 6,104,812. This rejection is respectfully traversed, and the correctness of the rejection is not conceded. Reconsideration is requested for the following reasons.

Claim 1 is directed to a method for producing an optical watermark on a document. Claim 1 recites, among other limitations, embedding each latent image object into its respective watermark layer by phase modulation.

Preliminarily, it is respectfully asserted that one skilled in the art would understand the term "modulation" to mean the transmission of a signal by imposing the signal on a carrier wave by changing the carrier wave's amplitude, frequency, or phase. See the attached definition of "modulation" from WordNet 1.7. Thus, the term "modulation" connotes the interaction between (i) a signal, and (ii) a carrier wave. The phrase "phase modulation" means the transmission of a signal by imposing the signal on a carrier wave by changing the carrier wave's phase.

For example, Figure 2 of the present application illustrates the use of phase modulation, wherein a part 205 is the phase modulation in the horizontal direction to embed a letter "T", while part 206 shows the phase modulation in the vertical direction to embed a letter "C". The phase modulation changes the distances between a pair of dots at the edge of the latent images in the direction of the phase modulation. According to the characteristics of the human visual system, such changes of distances will make the edge of the latent image become either lighter or

darker than the overall grey level of the dot array. Such effect will reveal the shape of the latent images. Application, Figure 2 and p. 6, l. 13- p. 7, l. 15.

The rejection apparently equates the term "modulation" with a simple alteration of a dot pattern. For example, the rejection cites column 4, lines 11-16 and Figures 10 and 19A of Koltai as disclosing phase modulation. This characterization of Koltai is respectfully traversed for at least the following reasons.

Koltai discloses at column 4, lines 11-16 a method for digitally incorporating secondary images into a primary image, and decoding of the secondary image using a variety of decoders. Koltai does not disclose or suggest use of phase modulation.

Likewise, Koltai discloses in Figures 10 and 19A simple repositioning of dots (col. 10, ll. 4-12) and encoding of an image to create double line thickness modulation (col. 15, ll. 63 and 64). Neither of these sections of Koltai discloses or suggests phase modulation, or transmission of a signal by imposing the signal on a carrier wave by changing the carrier wave's phase.

It is therefore respectfully suggested that Koltai fails to disclose or suggest embedding each latent image object into its respective watermark layer by phase modulation. Reconsideration and allowance of claim 1, as well as claims 2-4, 6-9, 13-16, and 20-22 that depend therefrom, are respectfully requested for at least these reasons.

Claim 23 is directed to an optical watermark stored on a computer-readable medium. Claim 23 recites, among other limitations, at least one latent image object embedded into each watermark layer by phase modulation. Claim 23 is allowable for at least reasons similar to those provided above with respect to claim 1. Reconsideration and allowance of claim 23, as well as claims 24-26, 28-31, 35-38, and 43-45 that depend therefrom, are therefore respectfully requested.

## **II. Claim Rejections - 35 U.S.C. § 103**

In sections 11-16 of the Action, claims 5, 12, 17-19, 27, 34, and 39-42 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Koltai in view of various secondary references. These rejections are respectfully traversed, and the correctness of these rejections is not conceded. Reconsideration is requested for at least the following reasons.


Claims 5, 12, 17-19, 27, 34, and 39-42 all depend respectively from one of claims 1 and 23. None of the secondary references remedies the shortcomings of Koltai noted above. Therefore, claims 5, 12, 17-19, 27, 34, and 39-42 are allowable for at least the same reasons as those provided above with respect to claims 1 and 23. Reconsideration and allowance are therefore respectfully requested.

### III. Conclusion

Favorable reconsideration in the form of a Notice of Allowance is respectfully requested. Please contact the undersigned attorney with any questions regarding this application.

Respectfully submitted,  
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Date: June 29, 2005

  
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Attachment: Appendix

**APPENDIX**

Attached hereto is a definition of the term "modulation" from WordNet 1.7  
<<http://dict.die.net/modulation/>>, visited June 16, 2005.

modulation - definition by dict.die.net

## Definition: modulation

Search dictionary for **modulation**

Source: WordNet (r) 1.7

### modulation

- n 1: a musical passage moving from one key to another [syn: transition]  
2: (electronics) the transmission of a signal by imposing it on a carrier wave by changing the carrier's amplitude or frequency or phase

Source: Webster's Revised Unabridged Dictionary (1913)

**Modulation** (Mod'u-la'tion), n. [L. modulatio: cf. P. modulation.]

1. The act of modulating, or the state of being modulated; as, the modulation of the voice.
2. Sound modulated; melody. [R.] --Thomson.
3. (Mus.) A change of key, whether transient, or until the music becomes established in the new key; a shifting of the tonality of a piece, so that the harmonies all center upon a new keynote or tonic; the art of transition out of the original key into one nearly related, and so on, it may be, by successive changes, into a key quite remote. There are also sudden and unprepared modulations.

#### QPSK Modulator

Wide band, high data rate, tight amplitude / phase balance.

#### PerfectPitch Ear Training

Recognize any tone or chord by ear and master the language of music!

#### Modulators

Channel Vision modulators. All models available.

#### Signal Generators

20MHz & 80MHz Full Arbitrary Waveform price & specs

Ad: